REMARKS

This is intended as a full and complete response to the Office Action dated January 12, 2005.

All references to paragraph numbers indicate those of the published application.

Disposition of the Claims

Claims 1 - 20 are currently pending and stand rejected.

Amendment of the Claims

Claims 1 and 19 are amended to incorporate the limitation that the controlled distribution block B have a monoalkenyl arene blockiness of less than about 40%. Support for these amendments is found in paragraph [0029].

Rejections

Claims 3, 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

The Examiner has asserted that Claim 3 should be referring to Claim 1 since there is no component (b) in Claim 3. Applicants respectfully point out that dependent Claim 3 is a further limitation regarding the 1,2-configuration of the conjugated diene limitation of dependent Claim 2. Conjugated diene has antecedent basis in Claim 1(a)(i), from which Claim 2 depends. Therefore, Claim 3 incorporates all of the limitations of Claim 1. Applicants maintain that Claim 3 is proper.

The Examiner has asserted that Claim 15, which recites a limitation on polymerization initiators, should depend on Claim 1 since there is no initiator in Claim 3. Applicants note that antecedent basis for polymerization initiators is found in Claim 1(c). Claim 3 incorporates all of the limitations of Claim 1 since it is dependent upon Claim 2 which is itself dependent upon Claim 1. Therefore, Applicants maintain that Claim 15 is proper.

The Examiner has asserted that Claim 16, which recites a limitation on auxiliaries should depend upon Claim 1 since there is no initiator in Claim 3. Antecedent basis for auxiliaries is found in Claim 1(d). For the same reasons mentioned above, Applicants note that Claim 3 incorporates all of the limitations of Claim 1 and is therefore proper.

Applicants respectfully note that a claim which makes reference to a preceding claim to define a limitation is an acceptable claim construction which should not necessarily be rejected as improper or confusing under 35 U.S.C. 112, second paragraph (MPEP 2173.05 (f)). Applicants request reconsideration and withdrawal of the rejection.

Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knoll U.S. Patent 6,531,263 in view of Shibata et al. U.S. Patent 5,191,024. The Examiner states that the broad definition of the controlled distribution block copolymer of the present invention is readable to any block copolymer produced by sequential addition of monomers. Applicants respectfully disagree. The controlled distribution block is made by a detailed and specific process which is clearly described in the specification. It is therefore not broadly defined but rather quite specifically defined in both the specification ([0025] – [0039]) and the claims. Furthermore, the controlled distribution block copolymer, because of its unique characteristics, is not readable on any block copolymer produced by sequential addition of monomers. In particular, Applicants have pointed out that "controlled distribution" refers to a copolymer block that has a molecular structure with the following attributes: (1) terminal regions adjacent to the mono alkenyl arene homopolymer ("A") blocks that are rich in conjugated diene units; (2) one or more regions not adjacent to the A blocks that are rich in mono alkenyl arene units; and (3) an overall structure having relatively low blockiness (see [0025]). In order to more clearly present the invention, Claims 1 and 19 are amended to include the limitation on blockiness.

Knoll '263 teaches flexographic printing elements comprising blends of SBS and SIB block copolymers. Nowhere in '263 does Knoll teach or suggest block copolymers having a copolymer block of any type ('263 teaches homopolymer blocks). The rubber midblocks are either butadiene or isoprene alone. Even mixtures of these are not mentioned. Importantly, the incorporation of a mono alkenyl arene in the B or I blocks in any fashion (random, tapered, controlled distribution, etc.) is not taught or suggested. Thus, '263 provides no motivation for one of ordinary skill in the art to make the clear, flexographic printing plate compositions of the present invention which comprise an unhydrogenated styrene/diene block copolymer and a hydrogenated, controlled distribution block copolymer.

Shibata et al. '024 teaches a block copolymer composition for application as modifier for polar or non-polar resins which comprises A-B, A-B-C or A-B-A block copolymers wherein A is an alkenyl aromatic compound block, B can be a alkenyl aromatic compound-conjugated diene random copolymer block, and C is a alkenyl aromatic compound-conjugated diene tapered copolymer block. Neither copolymer block B nor copolymer block C of Shibata et al. is a controlled distribution block copolymer. In column 5, lines 37 – 47 Shibata et al. refers to the "control" of the amount of the monomers in each polymerization stage and also "control" of the vinyl content by controlling the amount of microstructure controlling agent. The process of making block B of Shibata et al. simply involves "polymerizing a conjugated diene and an alkenyl aromatic compound to form Block (B)" (see column 5, lines 5-11). One of ordinary skill in the art would understand this process to make a random copolymer. In fact, Shibata et al. teach that the B block is a random copolymer block (see column 1, lines 62-68, and the Abstract). Nowhere does Shibata et al. teach or suggest control of the distribution of the comonomers to make the controlled distribution block copolymer of the present invention. What is meant by "controlled distribution" in the context of the present invention is described in detail in the specification as mentioned above. Shibata et al. does not teach, suggest or motivate one of ordinary skill in the art, by presentation of either its non-hydrogenated precursors or hydrogenated polymers, to make the hydrogenated, controlled distribution block copolymers of the present invention.

The block copolymers of the present invention are unique because of the control of distribution of the mono alkenyl arene and conjugated diene monomer in block B. Furthermore, this block copolymer structure leads to unique properties in flexographic printing plate applications. That one could not use Knoll in light of Shibata et al to make the present invention is shown by Comparative Example 1 of the present application. In that application, an unhydrogenated SIS block copolymer is combined with an S-EB-S hydrogenated block copolymer. This combination fails as a clear, flexographic printing plate. It is hazy because of the phase separation between the SIS and S-EB-S. This haze does not allow sufficient penetration of UV radiation and interferes with curing. Surprisingly, the controlled distribution polymers of the present invention give a more compatible and thus clear and better curing printing plate composition. One of ordinary skill in the art would expect incorporation of mono alkenyl arene monomer in the EB block to lead to even greater incompatibility with SIS formulations. However, the contrary behavior is experienced and clear formulations are achieved. This solves the long standing problem stated as the objective of the invention: that hydrogenated block copolymers can be added to flexographic printing plate compositions to provide enhanced ozone resistance while remaining clear.

In summary, the two references, either alone or in combination, do not teach, suggest or motivate one of ordinary skill in the art to make the clear, flexographic printing plate compositions of the present application. Applicants thus maintain that the present claims are patentable over Knoll in view of Shibata et al. and respectfully request withdrawal of the rejection.

Having addressed all issues set out in the Office Action, Applicants respectfully submit the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

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